From: Vandendoren, Alain
To: Stuble, Bill
Cc: Potter, Dolly; Hodgson, Rich
Subject: RE: Calcinator model -- final -- for review
Date: Friday, July 16, 2004 2:31:49 PM
Attachments: Calcinator for PFD.xls
520pf133.dwg
520pf133.pdf
Importance: High

The model looks fine to me.

I've adapted the spreadsheet and included it in the PFD for review.

Notes:

- I've used the flows, temp and mass fractions as per calcinator, no volume fractions
- I've combined air coal and air trona into leak air (problem = 2 different temps so volume flow are a little off)
- I've deleted LCZ out and MCZ out as they are not useful for the engineering firm
- No unburned coal, if we need it it will have to be added manually
- No dust in the gas, all the trona comes out in the calciner spill (I believe this should be OK for this purpose)
- Deleted flows 2,3 (precip & cyclone dust) and 12,13 (precip & cyclone gas) from the flow sheet
- The spreadsheet in the PFD is not linked it is just inserted (the file is attached)
- Drawing Title block will need some clean-up

Let me know if this is OK, I'll be back on Tuesday.

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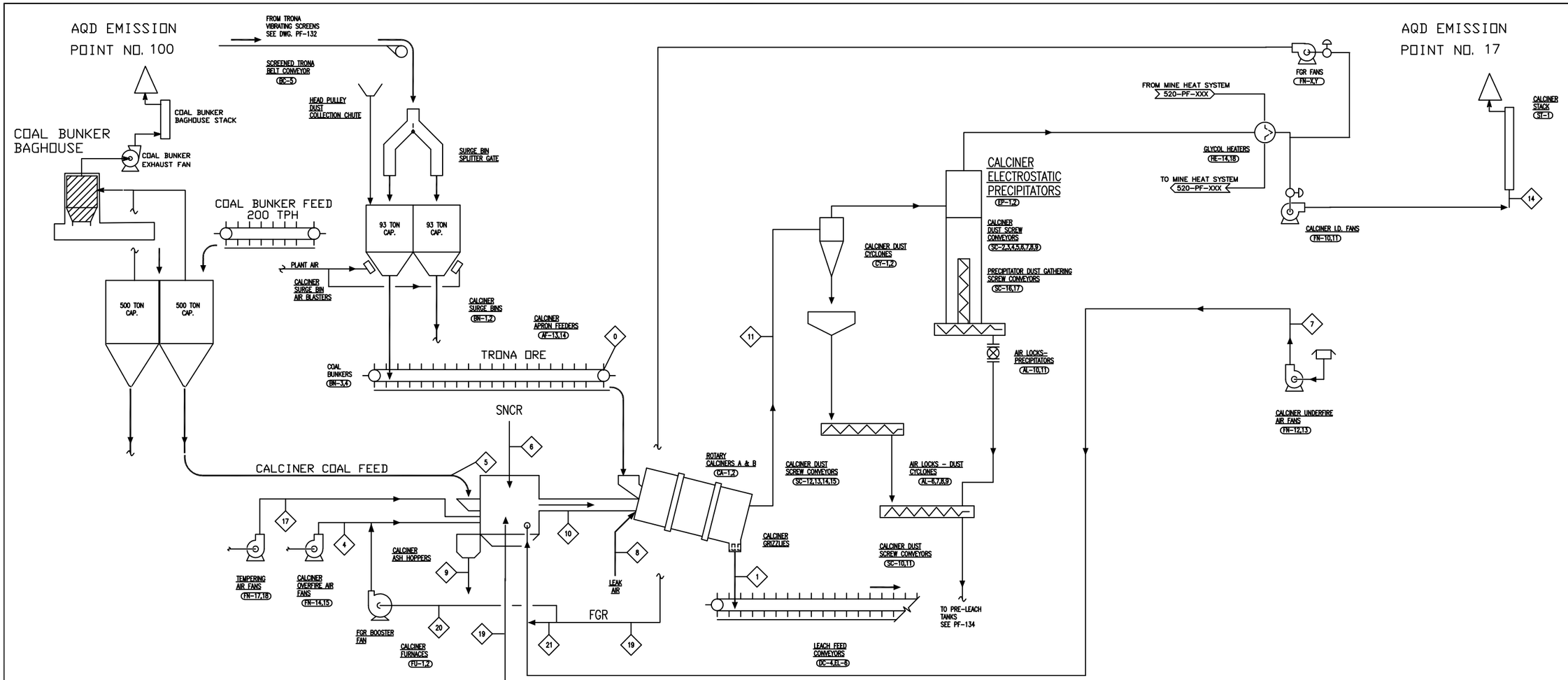
I am on x-fert : http://x-fert.solvay.com/record.asp?IDN=19250



	0	1	4	5	6	7	8	9	10	11	14	17	18	19	20	21
	Raw Trona Ore	Calcined Trona & Precip Dust	Overfire Air	Coal	SNCR Urea	Underfire Air	Leak Air	Stocker Ash	Combustion Gas	Calciner Off Gas (No Dust)	Stack Gas	Tempering Air	Water Injection	FGR Total	FGR Overfire Air	FGR Under Grate Air
Flow Total (lb/h)	280,000	201,762	67,378	16,100	85	85,782	13,675	920	309,319	307,368	317,368	51,481	8,659	80,000	12,800	67,200
ACFM			36,822			46,879	7,329		445,292	311,210	235,033	28,123		59,246	9,479	49,766
SCFM			14,771			18,805	2,976		69,166	68,564	74,730	11,281		18,835	3,014	15,821
DSCFM			14,771			18,805	2,976		67,989	68,563	50,848	11,281		12,817	2,051	10,766
Temperature (F)	70.0	320.0	80.0	48.0	77.0	80.0	77.0	2,495.6	1,712.1	424.9	350.0	80.0	70.0	350.0	350.0	350.0
Mass fractions																
O2			0.233			0.233	0.233		0.088	0.074	0.074	0.233		0.074	0.074	0.074
N2			0.767			0.767	0.767		0.654	0.528	0.528	0.767		0.528	0.528	0.528
CO										0.000003	0.000003			0.000003	0.000003	0.000003
CO2									0.153	0.183	0.183			0.183	0.183	0.183
H2O	0.005				Urea Solution				0.104	0.214	0.214		1.000	0.214	0.214	0.214
SO2									0.000665	0.000743	0.000743			0.000743	0.000743	0.000743
SO3																
NO2																
COAL				1.000												
ASH								1.000								
TRONA	0.825															
NA2CO3		0.903														
Insolub	0.070	0.097														
C (org)	0.000002															

PLOT DATE: 03-05-03 FILE NAME: 520PF133

NO.	REVISIONS	BY	DATE	DWG. NO.	REFERENCE DRAWINGS
9	CONVERSION BACK TO COAL	W..E.S.	03-05-03	420-PF-132A	TRONA CONVEYING & CRUSHING PFD
4	HEATING GLYCOL REDRAWN, FLOW QUANTITIES	S.A.W.	12-4-80	530-PF-134	LEACHING & THICKENING PFD
5	REVISED COAL SYSTEM TO CALCINING	C.L.Q.	9-23-81	700-PF-100	STEAM DISTRIBUTION 300# STEAM PFD
6	ISSUED FOR AS-BUILT	R.S.R.	2-3-92		
7	REVISION & REDRAWN USING AUTOCAD REL. 12	S.D.S.	4-11-94		
8	DEBOTTLE NECK INL II	D.L.A.	6-14-94		

AFE NO.		DATE
DESIGNED BY		
DRAWN BY		
CHECKED BY	D.A.P.	03/05/03
APPROVED BY	R.N.S.	03/05/03
APPROVED BY		
APPROVED BY		

TITLE:
CALCINING CONVERSION TO COAL
PROCESS FLOW DIAGRAM

SOLVAY CHEMICALS
INTEROX, FLUORIDES & MINERALS
GREEN RIVER, WYOMING

SCALE ON 36"X24" SHT: NONE | SHT. 1 OF 1 | AREA: 520

DRAWING NUMBER: 520-PF-133 REV 9

	Raw Trona Ore	Calcined Trona & Precip Dust	Overfire Air	Coal	SNCR Urea	Underfire Air	Leak Air	Stocker Ash	Combustion Gas	Calciner Off Gas (No Dust)	Stack Gas	Tempering Air	Water Injection	FGR Total	FGR Overfire Air	FGR Under Grate Air
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ACFM			36,822			46,879	7,329		445,292	311,210	235,033	28,123		59,246	9,479	49,766
SCFM			14,771			18,805	2,976		69,166	93,554	74,720	11,281		18,835	3,014	15,821
DSCFM			14,771			18,805	2,976		57,889	63,663	50,846	11,281		12,817	2,051	10,766
Temperature (F)	70.0	320.0	80.0	43.0	77.0	80.0	77.0	2,496.6	1,712.1	424.9	350.0	80.0	70.0	350.0	350.0	350.0
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SO2									0.000955	0.000743	0.000743			0.000743	0.000743	0.000743
SO3																
NO2																
COAL				1.000												
ASH								1.000								
TRONA	0.925															
NA2CO3		0.903														
Insolub	0.070	0.097														
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